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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,417	02/03/2005	Rainer Blum	264738US0PCT	1181

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EXAMINER

CORDRAY, DENNIS R

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/523,417

Applicant(s)

BLUM ET AL.

Examiner

Dennis Cordray

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/3/2005</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuo et al (5529699).

Kuo et al discloses a papermaking process comprising adding to the papermaking stock a retention aid comprising a water soluble cationic polymer and a microparticle (Abstract; col 9, lines 49-58). The cationic polymer is a copolymer comprising vinyl amine and diallyldialkylammonium salt monomers. The vinylamine is created by modifying polymerized vinylamide by partial or complete hydrolysis (col 6, lines 13-56; col 8, lines 33-58). The vinyl amide can be vinylformamide and the diallyldialkylammonium salt can be diallyldimethylammonium chloride (col 5, lines 45-48). The molecular weight of the cationic polymer can be from 10,000 to 2,000,000 (col 8, lines 27-31). The charge density can be from 1 to 24 meq/g (col 11, lines 14-16). The microparticles can be colloidal silica, bentonite or siliceous materials (col 9, line 62- col 10, line 2). The composition, molecular weight and charge density ranges significantly overlap and thus anticipate the claimed retention system.

Kuo et al discloses that the cationic polymer is added in an amount from 0.005% to 0.5% by weight based on the dry pulp, with a preferred range of 0.01% to 0.3%. The

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microparticles can be added in an amount from 0.05% to 3% and preferably from 0.1% to 1.5% by weight based on the dry pulp (col 10, line 62 to col 11, line 2). The cationic polymer is preferably added first followed by the microparticles. Typically, both components are added close to the headbox prior to sheet formation (col 10, lines 49-53).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al.

Kuo et al does not specifically disclose that the cationic polymer can be polyacrylamide. Kuo et al does not disclose that the polymer and microparticles are metered into the papermaking stock.

Kuo et al does teach that retention systems are known that use cationic polyacrylamide and bentonite in which the polyacrylamide has a molecular weight from 500,000 to 30,000,000 and a charge density from 0.35 to 2.5 meq/gm (col 2, lines 14-22).

The art of Kuo et al and the instant invention are analogous as pertaining to polymeric and microparticle retention systems used in papermaking. It would have been obvious to one skilled in the art at the time of the invention to use polyacrylamide

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having the claimed molecular weight and charge density in the process of Kuo et al as a known and functionally equivalent option. It would also have been obvious to meter in the components of the retention system to obtain a dispersed solution.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al (6379501) in view of Kuo et al.

Zhang et al discloses a papermaking process comprising adding to the papermaking stock a retention aid comprising a water soluble cationic polymer followed by a microparticle (Abstract; col 13, lines 1-20). The cationic polymer can be a homopolymer or copolymer comprising vinyl amine or polyacrylamide monomers (col 13, lines 39-53). The molecular weight of the cationic polymer can be from 500,000 to 15,000,000 (col 13, lines 54-56). The charge density is preferably from 0.1 to 4 meq/g (col 13, lines 63-65). The microparticles can be silicate materials (col 12, lines 61-62). The composition, molecular weight and charge density ranges significantly overlap and thus anticipate the claimed retention system.

Zhang et al discloses that the cationic polymer is added in an amount from 0.1 to 4 lb/ton (0.005% to 2% by weight) and preferably 0.2 to 2 lb/ton (0.01% to 0.1% by weight) based on the dry pulp (col 13, line 66 to col 14, line 1). The microparticles can be added in an amount from 0.1 to 20 lb/ton (0.005% to 1% by weight) and most preferably from 1 to 4 lb/ton (0.05% to 0.2% by weight) based on the dry pulp (col 12, lines 62-67).

Zhang et al does not disclose that the cationic polymer and microparticles are added after the last shear stage and before the headbox or that the retention components are metered into the papermaking stock. Zhang et al also does not disclose that the polyvinylamine is made by hydrolysis of polyvinylformamide.

Kuo et al discloses that the cationic polymer is added first followed by the microparticles and that both components are typically added close to the headbox prior to sheet formation (col 10, lines 49-53). Kuo et al also discloses polyvinylamine made by partial or complete hydrolysis of polyvinylformamide (col 8, lines 33-58).

The art of Zhang et al, Kuo et al and the instant invention are analogous as pertaining to polymeric and microparticle retention systems used in papermaking. It would have been obvious to one skilled in the art at the time of the invention to add the claimed cationic polymers and microparticles after the last shear stage in the process of Zhang et al in view of Kuo et al as a typical functionally equivalent addition point. It would also have been obvious to meter in the components of the retention system to obtain a dispersed solution. It would have been obvious to hydrolyze polyvinylformamide to obtain polyvinylamine as a well known and functionally equivalent process.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure [Langley et al (4913775), Cutts (5676796)]. They pertain to other cationic polymer and microparticle retention systems.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DRC


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